National Diabetes Quality Improvement Alliance
Performance Measurement Set for Adult Diabetes

Approved January 21, 2005

Agency for Healthcare Research and Quality
American Academy of Family Physicians
American Association of Clinical Endocrinologists
American College of Physicians
American Diabetes Association
American Medical Association
Centers for Disease Control and Prevention
Centers for Medicare and Medicaid Services
Joint Commission on Accreditation of Healthcare Organizations
National Committee for Quality Assurance
National Institute of Diabetes and Digestive and Kidney Diseases
The Endocrine Society
U.S. Department of Veterans Affairs

A1c Management

Importance for Patient Care	Clinical Recommendations*		Performance Measures (per year)		Rationale
	Description of Recommendations	Treatment Goals	For Purposes of Quality Improvement	For Purposes of Public Reporting	
Intensive therapy of glycosylated hemoglobin (A1c) reduces the risk of microvascular complications.[1,2,3]	American Association of Clinical Endocrinologists/American College of Endocrinology (AACE/ACE): Recommend that a glycosylated hemoglobin be performed during an initial assessment and during follow-up assessments, which should occur at no longer than three-month intervals.[4] American Diabetes Association (ADA): Recommends obtaining a glycosylated hemoglobin during an initial assessment and then routinely as part of continuing care. In the absence of well-controlled studies that suggest a definite testing protocol, expert opinion recommends glycosylated hemoglobin be obtained at least twice a year in patients who are meeting treatment goals and who have stable glycemic control and more frequently (quarterly assessment) in patients whose therapy was changed or who are not meeting glycemic goals. (Level of evidence: E)[5]	AACE/ACE: Recommend that A1c be universally adopted as the primary method of assessment of glycemic control. On the basis of data from multiple interventional trials, the target for attainment of glycemic control should be A1c values ≤6.5%. ADA: Because different assays can give varying glycated hemoglobin values, the ADA recommends that laboratories only use assay methods that are certified as traceable to the Diabetes Control and Complications Trial A1c reference method. The ADA's goal for glycemic control is A1c <7%. (Level of evidence: B) American Geriatrics Society (AGS): Monitor and treat hyperglycemia, with a target A1C of 7%, but less stringent goals for therapy may be appropriate once patient preferences, diabetes severity, life expectancy and functional status have been considered.[6]	Per patient Number of A1c tests received** Trend of A1c values Per patient population Percentage of patients receiving one or more A1c test(s) Numerator: Patients who received one or more A1c test(s) Denominator: All patients diagnosed with diabetes 18-75 years of age Distribution of number of tests done (0, 1, 2, 3 or more) Distribution of most recent A1c value by range: ≤ 6.0 6.1-7.0 7.1-8.0 8.1-9.0 9.1-10.0 > 10.0 undocumented	Percentage of patients with one or more A1c test(s) Numerator: Patients who received one or more A1c test(s) Percentage of patients with most recent A1c level >9.0% (poor control) Numerator: Patients with most recent A1c level >9.0% (poor control) Denominator (both measures): All patients diagnosed with diabetes 18-75 years of age	Please note the differences between the clinical recommendations/ treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc.[7] The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update The performance measures remain unchanged from 2004 with one exception. A public reporting measure on the percentage of patients with most recent A1c level <7.0% is under active consideration by the Alliance. Before such a measure can be put forward, appropriate means for considering case mix must be specified.

* Please note that the recommendations are listed alphabetically by author; no preference or order of importance is implied.
** This measure is not intended to imply an optimal number of tests or visits. Treatment must be based on individual patient needs and professional judgment.

Importance for Patient Care	Clinical Recommendations*			Performance Measures (per year)		Rationale
	Description of Recommendations	Treatment Goals		For Purposes of Quality Improvement	For Purposes of Public Reporting	
Persons with diabetes are at increased risk for coronary heart disease (CHD). Lowering serum cholesterol levels can reduce the risk for CHD events.[8]	AACE/ACE: Recommend that a fasting lipid profile be obtained during an initial assessment, each follow-up assessment, and annually as part of the cardiac-cerebrovascular-peripheral vascular module.[4,9] ADA: Recommends that a fasting lipid profile be obtained as part of an initial assessment. Adult patients with diabetes should be tested annually for lipid disorders with fasting serum cholesterol, triglycerides, HDL cholesterol, and calculated LDL cholesterol measurements. If values fall in lower-risk levels, assessments may be repeated every two years. (Level of evidence: E)[5] Patients who do not achieve lipid goals with lifestyle modifications require pharmacological therapy. Lowering LDL cholesterol with a statin is associated with a reduction in cardiovascular events. (Level of evidence: A) American College of Physicians (ACP): Recommends that lipid-lowering therapy should be used for secondary prevention of cardiovascular mortality and morbidity for all patients with known coronary artery disease and type 2 diabetes. Statins should be used for primary prevention against macrovascular complications in patients with type 2 diabetes and other cardiovascular risk factors. Once lipid-lowering therapy is initiated, patients with type 2 diabetes mellitus should be taking at least moderate doses of a statin.[10] AGS: Older persons with diabetes are likely to benefit greatly from cardiovascular risk reduction, therefore monitor and treat hypertension and dyslipidemias.[6]			Per patient Trend of values for each test Patient whose most recent LDL-C is <130 mg/dl or receiving a statin or other lipid-lowering therapy Patient whose most recent LDL-C is <100 mg/dl or receiving a statin or other lipid-lowering therapy	Percentage of patients with at least one LDL-C test Numerator: Patients who received at least one lipid profile (or ALL component tests) Percentage of patients with most recent LDL-C <130 mg/dl Numerator: Patients with most recent LDL-C <130 mg/dl Percentage of patients with most recent LDL-C <100 mg/dl Numerator: Patients with most recent LDL-C <100 mg/dl Denominator (all measures): All patients diagnosed with diabetes 18- 75 years of age	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update Additional quality improvement and public reporting measures have been added. Quality improvement measures on the percentage of patients receiving a statin or other lipid-lowering therapy if they have not achieved an LDL-C level <130 or <100 have been added. Because there is evidence that statins are beneficial to patients and effective in lowering LDL-C levels, these new measures allow a provider to track those individual patients who have not yet achieved the target LDL-C goals but are receiving recommended therapies. A public reporting measure on the percentage of patients with most recent LDL-C <100 mg/dl has been added. The LDL-C <130 mg/dl public reporting measure remains.
				Per patient population Percentage of patients receiving at least one lipid profile (or ALL component tests) Numerator: Patients who received at least one lipid profile Percentage of patients whose most recent LDL-C is <130 mg/dl or receiving a statin or other lipid-lowering therapy Numerator: Patients whose most recent LDL-C is <130 mg/dl or receiving a statin or other lipid-lowering therapy Percentage of patients whose most recent LDL-C is <100 mg/dl or receiving a statin or other lipid-lowering therapy Numerator: Patients whose most recent LDL-C is <100 mg/dl or receiving a statin or other lipid-lowering therapy Denominator (all measures): All patients diagnosed with diabetes 18-75 years of age		
		Total Cholesterol	AACE/ACE: Acceptable <200 Ideal <170	Distribution of most recent test values by range: ≥240 200-239 <200 undocumented		
		LDL Cholesterol (LDL-C)	AACE/ACE: Acceptable <130 Ideal <100 ADA[9]: Low (Target) <100 NCEP[11]: Normal/Optimal <100	≥160 130-159 100-129 <100 undocumented If Non-HDL cholesterol is reported, record the test values in the following ranges: ≥190, 160-189, 130-159, <130, undocumented		
		HDL Cholesterol	AACE/ACE: Acceptable >35 Ideal >45 ADA[9]: Target (men) >45 Target (women) >55	<40 40-49 50-59 ≥60 undocumented		
		Triglycerides	AACE/ACE: Acceptable <200 Ideal <150 ADA[9]: Target <150	≥400 200-399 <200 150-199 <150 undocumented		

Note: Data are given in milligrams per deciliter * Please note that the recommendations are listed alphabetically by author; no preference or order of importance is implied.

Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
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Diabetes is the leading cause of end-stage renal disease (ESRD).[12] In the United States, diabetic nephropathy accounts for about one-third of all cases of ESRD. The earliest clinical evidence of nephropathy is the appearance of low, but abnormal levels of albumin (protein) in the urine, referred to as microalbuminuria. Early detection and treatment may prevent or slow the progression of diabetic nephropathy.[13]	AACE/ACE: Recommends that the initial assessment should include a urinalysis, test for microalbuminuria and creatinine clearance. The renal complication module should be performed annually and includes a test for microalbuminuria and creatinine clearance. ADA: A test for the presence of microalbumin should be performed at diagnosis in patients with type 2 diabetes. Microalbuminuria rarely occurs with short duration of type 1 diabetes; therefore, screening in individuals with type 1 diabetes should begin after 5 years' disease duration (Level of Evidence: E). However, some evidence suggests that the prepubertal duration of diabetes may be important in the development of microvascular complications; therefore, clinical judgment should be exercised when individualizing these recommendations. Because of the difficulty in precise dating of the onset of type 2 diabetes, such screening should begin at the time of diagnosis. After the initial screening and in the absence of previously demonstrated microalbuminuria, a test for the presence of microalbumin should be performed annually.[13] Screening for microalbuminuria can be performed by three methods: 1) measurement of the albumin-to-creatinine ratio in a random spot collection: 2) 24-h collection with creatinine, allowing the simultaneous measurement of creatinine clearance: and 3) timed (e. g. 4-h or overnight) collection – the analysis of a spot sample for the albumin-to-creatinine ratio is strongly recommended. The role of annual microalbuminuria assessment is less clear after diagnosis of microalbuminuria and institution of angiotensin-converting enzyme (ACE) inhibitor or angiotensin receptor blocker (ARB) therapy and blood pressure control. Many experts recommend continued surveillance to assess both response to therapy and progression of disease. National Kidney Foundation (NKF): Individuals at increased risk, but found not to have chronic kidney disease, should be advised to follow a program of risk factor reduction, if appropriate, and undergo repeat periodic evaluation.[14]	Per patient Any test for microalbuminuria received If no urinalysis OR urinalysis with negative or trace urine protein, a test for microalbumin was received Patient who is not on an ACE inhibitor or ARB and was screened for microalbuminuria Patient who is on an ACE inhibitor or ARB and was screened for microalbuminuria Per patient population Percentage of patients who received any test for microalbuminuria Numerator: Patients who received any test for microalbuminuria Percentage of patients with no urinalysis OR urinalysis with negative or trace urine protein, who received a test for microalbumin Numerator: Patients with no urinalysis OR urinalysis with negative or trace urine protein, who received a test for microalbumin Denominator exclusion (measures listed above only): Patients who have documented evidence of a diagnosis of nephropathy or documentation of microalbuminuria or albuminuria. Percentage of patients who are on an ACE inhibitor or ARB and were screened for microalbuminuria Numerator: Patients who are on an ACE inhibitor or ARB and were screened for microalbuminuria Percentage of patients who are not on an ACE inhibitor or ARB and were screened for microalbuminuria Numerator: Patients who are not on an ACE inhibitor or ARB and were screened for microalbuminuria Denominator exclusion (measure above): Patients who are on an ACE inhibitor or ARB Denominator (all measures): All patients diagnosed with diabetes 18-75 years of age	Percentage of patients with at least one test for microalbumin during the measurement year; or who had evidence of medical attention for existing nephropathy (diagnosis of nephropathy or documentation of microalbuminuria or albuminuria) Numerator: Patients with at least one test for microalbumin during the measurement year; or who had evidence of medical attention for existing nephropathy or documentation of microalbuminuria or albuminuria Denominator: All patients diagnosed with diabetes 18-75 years of age	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update Additional Quality Improvement measures have been added. Although there is evidence that ACE inhibitors and ARBs are beneficial to patients and effective in delaying the progression of nephropathy, in clinical guidelines, the recommended frequency of surveillance of patients treated with ACE or ARB is more variable, and dependent upon clinical factors, than for patients not on these medications. These new measures provide a means for additional analysis on whether a patient is screened for microalbuminuria annually if they are receiving these therapies.

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Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
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Retinopathy poses a serious threat to vision. The prevalence of retinopathy is strongly related to the duration of diabetes. Treatment modalities exist that can prevent or delay diabetic retinopathy.[15]	AACE/ACE, ADA, and American Academy of Ophthalmology (AAO): Recommend that a dilated eye examination be performed on patients with diabetes during an initial assessment and at least annually thereafter.[4,15,16] AACE/ACE: Recommend that the annual eye examination be performed as part of a retinal module. The module includes test of visual acuity (Snellen chart); funduscopic examination and intraocular pressure (IOP) test. The AACE/ACE recommend that diabetic patients should be under the care of an ophthalmologist experienced in the management of diabetic retinopathy. AACE/ACE further believes that a dilated eye exam should only be done by an MD/DO. ADA: Patients with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 3-5 years after the onset of diabetes. In general evaluation for diabetic eye disease is not necessary before 10 years of age. However, some evidence suggests that the prepubertal duration of diabetes may be important in the development of microvascular complications; therefore, clinical judgment should be used when applying these recommendations to individual patients. (Level of Evidence: B) Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after diabetes diagnosis. (Level of Evidence: B) Subsequent examinations for type 1 and type 2 diabetic patients should be repeated annually by an ophthalmologist or optometrist who is knowledgeable and experienced in diagnosing the presence of diabetic retinopathy and is aware of its management. Examination will be required more frequently if retinopathy is progressing. This follow-up interval is recommended recognizing that there are limited data addressing this issue. (Level of Evidence: B) Seven standard field stereoscopic 30° fundus photography is an accepted method for examining diabetic retinopathy. AAO: Recommends that diabetic patients should be under the care of an ophthalmologist experienced in the management of diabetic retinopathy. Ophthalmologists with specialized knowledge and experience in managing the disease are best able to detect and treat serious disease. Stereoscopic photographs offer an advantage over nonstereoscopic photographs, and the traditional “seven stereo fields” provide the most complete coverage. AGS: Dilated eye examinations should be performed every two years at a minimum, and more often if there are additional risk factors for diabetic eye disease or evidence of age-related eye disease. American Optometric Association: Recommends eye examinations to determine level of diabetic retinopathy as follows (individual situations and level of eye disease may suggest more frequent eye examinations): Patients aged 29 years or younger (generally type 1 diabetes): within 3-5 years after diagnosis of diabetes once a person is age 10 years or older, and annually thereafter Patients aged 30 years or older (generally type 2 diabetes): at the time of diagnosis, and annually thereafter Pregnancy in pre-existing diabetes: prior to conception and during the first trimester, with follow-up evaluation during pregnancy based on findings of the first trimester examination and 6-8 weeks *post partum*.[17]	Per patient Dilated retinal eye exam performed by an ophthalmologist or optometrist Seven standard field stereoscopic photos with interpretation performed by an ophthalmologist or optometrist or imaging validated to match diagnosis from these photos Per patient population Percentage of patients receiving a dilated retinal eye exam by an ophthalmologist or optometrist Numerator: Patients who received a dilated retinal eye exam by an ophthalmologist or optometrist Percentage of patients receiving seven standard field stereoscopic photos with interpretation by an ophthalmologist or optometrist or imaging validated to match diagnosis from these photos Numerator: Patients who received seven standard field stereoscopic photos with interpretation by an ophthalmologist or optometrist or imaging validated to match diagnosis from these photos Denominator (both measures): All patients diagnosed with diabetes 18-75 years of age	Percentage of patients who received a dilated eye exam or seven standard field stereoscopic photos with interpretation by an ophthalmologist or optometrist or imaging validated to match diagnosis from these photos during the reporting year, or during the prior year, if patient is at low risk* for retinopathy A patient is considered low risk if the following criterion is met: - has no evidence of retinopathy in the prior year Numerator: Patients who received a dilated eye exam or seven standard field stereoscopic photos with interpretation by an ophthalmologist or optometrist or imaging validated to match diagnosis from these photos during the reporting year Numerator exclusion: Low risk patients (defined as a patient who had no evidence of retinopathy in the prior year) should have had an evaluation in the prior year Denominator: All patients diagnosed with diabetes 18-75 years of age	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update The low-risk criteria has been revised in the public reporting measure. Two criteria have been deleted: 1) patient not taking insulin and 2) patient has an A1c <8.0%. The Alliance determined that it is appropriate to limit the low-risk criteria for annual eye examinations to only those patients who had no evidence of retinopathy in the prior year. In 2004, the performance measures for quality improvement and public reporting have been revised to further define which funduscopic photo test should be performed. In addition, an imaging system that has been validated to match the diagnosis from the photos is an acceptable alternative.[18,19,20,21] Ophthalmologists and optometrists should provide a report back to the provider after each eye exam or funduscopic imaging. The eye report should include the level of diabetic retinopathy, the next recommended follow-up evaluation, and the specific medical eye management plan.

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<table>
<tr><th rowspan="2">Importance for Patient Care</th><th rowspan="2">Clinical Recommendations*</th><th colspan="2">Performance Measures (per year)</th><th rowspan="2">Rationale</th></tr>
<tr><th>For Purposes of Quality Improvement</th><th>For Purposes of Public Reporting</th></tr>
<tr><td rowspan="3">Persons with diabetes are at increased risk for foot ulcers and amputations. Annual, thorough foot examinations and management of risk factors can prevent or delay adverse outcomes.[22]</td><td rowspan="3">AACE/ACE and ADA:
Recommend that a foot examination (visual inspection, sensory exam, and pulse exam) be performed during an initial assessment.[4,22]

AACE/ACE:
Recommends that a foot examination be a part of every follow-up assessment visit, which should occur quarterly.

ADA:
Recommends that all individuals with diabetes should receive an annual foot examination to identify high-risk foot conditions. (Level of Evidence: E) This examination should include assessment of protective sensation, foot structure and biomechanics, vascular status, and skin integrity.

Perform a visual inspection of patient's feet at each routine visit. (Level of Evidence: E)

The foot examination can be accomplished in a primary care setting and should include the use of a Semmes-Weinstein monofilament, tuning fork, palpation, and a visual examination. (Level of Evidence: B)

The ADA recommends that people with one or more high-risk foot conditions should be evaluated more frequently for the development of additional risk factors. People with neuropathy should have a visual inspection of their feet at every contact with a health care professional.</td><td>Per patient

At least one complete foot exam received (visual inspection, sensory exam with monofilament, and pulse exam)</td><td rowspan="2">Percentage of eligible patients receiving at least one foot exam, defined in any manner

Numerator: Patients who received at least one foot exam, defined in any manner

Denominator: All patients diagnosed with diabetes 18-75 years of age</td><td rowspan="3">Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are not clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc.

The quality improvement measures are intended primarily to facilitate provider tracking of individual patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems.

The public reporting measures are population level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction.

2005 Update

The performance measures remain unchanged from 2004.</td></tr>
<tr><td>Per patient population

Percentage of eligible patients receiving at least one complete foot exam (visual inspection, sensory exam with monofilament, and pulse exam)

Numerator: Patients who received at least one complete foot exam (visual inspection, sensory exam with monofilament, and pulse exam)

Denominator: All patients diagnosed with diabetes 18-75 years of age</td></tr>
<tr><td colspan="2">Denominator exclusion: All patients with bilateral foot amputation</td></tr>
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Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
		For Purposes of Quality Improvement	For Purposes of Public Reporting	
Patients with diabetes are considered to be at increased risk for complications, hospitalization, and death from influenza and pneumococcal disease.[23]	Advisory Committee on Immunization Practices: Immunization for influenza is strongly recommended for any person 6 months of age or older who, because of age or underlying medical condition, is at increased risk for complications of influenza.[24] ADA: Recommends an influenza vaccine for patients with diabetes, aged ≥6 months, beginning each September. (Level of Evidence: C)	Per patient Immunization status Per patient population Percentage of patients who received an influenza immunization during the recommended calendar period Numerator: Patients who received an influenza immunization during the calendar year Percentage of eligible patients who received an immunization or refused immunization during the calendar period Numerator: Patients who received an immunization or refused immunization during the calendar year Denominator (both measures): All patients diagnosed with diabetes 18-75 years of age Denominator exclusion: Patients allergic to eggs	None	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc.[7] The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. 2005 Update The performance measures remain unchanged form 2004. The measure remains inappropriate for public reporting purposes for two reasons: 1) The data needed for this measure are often not readily available from claims data. 2) Abstraction from the medical record cannot be considered reliable for this aspect of care due to the fact that often patients do not receive their influenza immunization from their provider but from other community sources.

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** It is recommended that data be reported two ways in recognition of patient preferences.

Importance for Patient Care	Clinical Recommendations*		Performance Measures (per year)		Rationale
	Description of Recommendations	Treatment Goals	For Purposes of Quality Improvement	For Purposes of Public Reporting	
Intensive control of blood pressure in patients with diabetes reduces diabetes complications, diabetes-related deaths, strokes, heart failure, and microvascular complications.[25]	AACE/ACE: Recommends that a blood pressure determination during the initial evaluation, including orthostatic evaluation, be included in the initial and every interim physical examination. ACP: Blood pressure control must be a priority in the management of persons with hypertension and type 2 diabetes.[26] ADA: Blood pressure should be measured at every routine diabetes visit. Patients found to have systolic blood pressure ≥130 mmHg or diastolic ≥80 mmHg should have blood pressure confirmed on a separate day. Orthostatic measurement of blood pressure should be performed to assess for the presence of autonomic neuropathy. (Level of Evidence: E)[27] AGS: Older persons with diabetes are likely to benefit greatly from cardiovascular risk reduction, therefore monitor and treat hypertension and dyslipidemias. JNC VII[28]: Recommends that measurement of blood pressure in the standing position is indicated periodically, especially in those at risk for postural hypotension. At least two measurements should be made and the average recorded. After BP is at goal and stable, followup visits can usually be at 3- to 6-month intervals. Comobidities such as heart failure, associated diseases such as diabetes, and the need for laboratory tests influence the frequency of visits. NKF: Recommends that all individuals should be evaluated during health encounters to determine whether they are at increased risk of having or of developing chronic kidney disease. This evaluation of risk factors should include blood pressure measurement.	ACP: Clinicians should aim for a target blood pressure of no more than 135/80 mm Hg for their patients with diabetes. Thiazide diuretics or ACE inhibitors can be used as first-line agents for blood pressure control in most patients with diabetes. ADA: Patients with diabetes should be treated to a diastolic blood pressure <80 mm Hg. (Level of Evidence: A) Patients with diabetes should be treated to a systolic blood pressure of <130 mm Hg. (Level of Evidence: B) All patients with diabetes and hypertension should be treated with a regimen that includes either an ACE inhibitor or ARB. If one class is not tolerated, the other should be substituted. If needed to achieve blood pressure targets, a thiazide diuretic should be added. (Level of Evidence: E) JNC VII: In patients with hypertension and diabetes or renal disease, the BP goal is <130/80 mmHg.	Per patient Most recent systolic and diastolic blood pressure reading Patient is receiving three or more antihypertensive medications Per patient population Distribution of most recent blood pressure values by range: Systolic (mm Hg): <120 120-129 130-139 140-149 150-159 160-169 170-179 ≥180 undocumented Diastolic (mm Hg): <75 75-79 80-89 90-99 100-109 ≥110 undocumented Percentage of patients who are receiving three or more antihypertensive medications Numerator: Patients who are receiving three or more antihypertensive medications Denominator: All patients diagnosed with diabetes 18-75 years of age	Percentage of patients with most recent blood pressure <140/80 mm Hg Numerator: All patients with most recent blood pressure<140/80 mm Hg Denominator: All patients diagnosed with diabetes 18-75 years of age	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update An additional Quality Improvement measure has been included and the diastolic blood pressure value has been revised for the Public Reporting measure. The Quality Improvement measure examines the number of patients who are on at least three antihypertensive medications. Three or more antihypertensive medications were chosen based on studies[29,30,31,32] where three or more antihypertensive medications were required in order to meet the target blood pressure levels. This new measure allows a provider to track those individual patients who have not yet achieved the target blood pressure goals but are receiving recommended therapies. For the Public Reporting measure, the diastolic value was reduced from 90 mm Hg to 80 mm Hg. We have not lowered the systolic value for the Public Reporting measure from 140 mm Hg for two reasons. First, because the measure's intended purpose is public reporting, the Alliance has chosen to keep the systolic value where evidence remains strongest (eg, based on randomized control trials). Second, many valid reasons may exist why an individual patient does not achieve or where it would not be safe to attempt a target systolic <130 mm Hg. Because this measure is not yet able to account for case mix, it is not appropriate to have as an accountability measure a blood pressure <130/80 mm Hg.

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Aspirin Use

Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
		For Purposes of Quality Improvement	For Purposes of Public Reporting	
Daily low-dose aspirin therapy is important for both primary and secondary prevention of cerebral and cardiac events. Aspirin has been used as a primary and secondary therapy to prevent cardiovascular events in diabetic individuals.	AACE/ACE: Recommends that optimal care of the diabetic patient include the use of antiplatelet therapy for prevention of vascular events. Prevention of vascular events by the antiplatelet effect of daily low-does aspirin (as low as 30mg/day) has been well established. Daily low-dose aspiring therapy is important for both primary and secondary prevention of cerebral and cardiac events. ADA: Recommends aspirin therapy as a secondary prevention strategy in diabetic men and women who have evidence of large vessel disease. This includes diabetic men and women with a history of MI, vascular bypass procedure, stroke or transient ischemic attack, peripheral vascular disease, claudication, and/or angina.[33] Consider beginning aspirin therapy (75-325 mg/day) for primary prevention in patients ≥40 years of age with diabetes and one or more other cardiovascular risk factors. (Level of Evidence: A) Use aspirin therapy (75-325mg/day) in all adult patients with diabetes and macrovascular disease. (Level of Evidence: A)[5,35] Do not use aspirin in patients <21 years of age because of the increased risk of Reye's syndrome. (Level of Evidence: A)[35] Recommends that people with aspirin allergy, bleeding tendency, anticoagulant therapy, recent gastrointestinal bleeding, and clinically active hepatic disease are not candidates for aspirin therapy.[35] Recommends aspirin therapy as a primary prevention in high-risk men and women with type 1 or type 2 diabetes. This includes: - Family history of coronary heart disease - Cigarette smoking - Hypertension - Obesity (>120% desirable weight); BMI >27.3kg/m2 in women, >27.8kg/m2 in men - Albuminuria (micro or macro) - Lipids: cholesterol >200mg.dl, LDL ≥100m.dl, HDL <45mg/dl in men and <55 in women - Age >30years	Per patient Patient receiving aspirin therapy (dose ≥ 75 mg) Per patient population Percentage of patients receiving aspirin therapy (dose ≥ 75 mg) Numerator: Patients who received aspirin therapy (dose ≥75 mg) Denominator: All patients diagnosed with diabetes Denominator exclusions: Patients < 40 years old OR Patients with contraindication or allergy to aspirin	None	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update The performance measures remain unchanged from 2004. This measure remains appropriate only for quality improvement purposes for two reasons: 1) The data needed for this measure are often not readily available from claims data. 2) Abstraction from the medical record cannot be considered reliable for this aspect of care in part because this drug is available over the counter and often is not recorded.

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Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
		For Purposes of Quality Improvement	For Purposes of Public Reporting	
	AACE/ACE: Recommends assessment of smoking history during the initial visit. Optimal care of the patient with diabetes must include cessation of smoking. ADA: Recommends routine and thorough assessment of tobacco use. Health care providers should advise all individuals with diabetes not to smoke.[5] For people who smoke, the ADA recommends implementation of smoking cessation guidelines incorporated into the routine practice of diabetes care.[5]	Per patient Patient assessed for smoking status Patient identified as a smoker was recommended or offered counseling or pharmacologic therapy Per patient population Percentage of patients assessed for smoking status Numerator: Patients assessed for smoking status Denominator: All patients diagnosed with diabetes 18-75 years of age Percentage of patients who are smokers Numerator: Patients who are smokers Denominator: All patients diagnosed with diabetes 18-75 years of age Percentage of smokers who were recommended or offered an intervention for smoking cessation (ie, counseling or pharmacologic therapy) Numerator: Patients who were recommended or offered an intervention for smoking cessation Denominator: All patients who are smokers 18-75 years of age	Percentage of patients whose smoking status was ascertained and documented annually Numerator: Patients whose smoking status was ascertained and documented annually Denominator: All patients diagnosed with diabetes 18-75 years of age	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update The performance measures remain unchanged from 2004.

* Please note that the recommendations are listed alphabetically by author; no preference or order of importance is implied.

Importance for Patient Care	Clinical Recommendations*	Performance Measures (per year)		Rationale
		For Purposes of Quality Improvement	For Purposes of Public Reporting	
Planned pregnancies greatly facilitate preconception diabetes care. Nearly two-third of pregnancies in women with diabetes are unplanned, leading to a persistent excess of malformations in infants of diabetic mothers.[34]	ADA: All women with diabetes and child-bearing potential should be educated about the need for good glucose control before pregnancy. They should participate in family planning.[36] To minimize the occurrence of devastating malformations, standard care for all women with diabetes who have child-bearing potential should include 1) counseling about the risk of malformations associated with unplanned pregnancies and poor metabolic control and 2) use of effective contraception at all times unless the patient is in good metabolic control and actively trying to conceive. Women with diabetes who are contemplating pregnancy should be evaluated and, if indicated, treated for diabetic retinopathy, neuropathy and CVD.[36]	Per patient Woman of child-bearing potential who received pre-pregnancy counseling with respect to diabetes care in preventing complications in the last two years Woman of child-bearing potential who was counseled on family planning or is receiving contraception in the last two years Per patient population Percentage of women of child-bearing potential who received pre-pregnancy counseling with respect to diabetes care in preventing complications in the last two years Numerator: Patients who received pre-pregnancy counseling with respect to diabetes care in preventing complications in the last two years Denominator: All female patients of child-bearing potential diagnosed with diabetes Percentage of women of child-bearing potential who were counseled on family planning or are receiving contraception in the last two years Numerator: Patients who were counseled on family planning or are receiving contraception in the last two years Denominator: All female patients of child-bearing potential diagnosed with diabetes	None	Please note the differences between the clinical recommendations/treatment goals and the performance measures. Measures are *not* clinical recommendations; measures are derived from clinical recommendations and must account for differences in individual patient conditions and preferences, feasibility of data collection, actionability by user, etc. The quality improvement measures are intended primarily to facilitate provider tracking of *individual* patient management with clinical recommendations/treatment goals. Data collection may be through abstracting paper medical records, completing paper flow sheets prospectively, or utilizing electronic data systems. The public reporting measures are *population* level measures; the data must be available from all users utilizing existing standardized data sources such as claims data or medical record abstraction. 2005 Update The performance measures remain unchanged from 2004.

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